

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT OPERATION

In re Application of:

Richard Sapienza

Serial No.: To be assigned Group Art Unit: To be assigned

Filed: Concurrently herewith Examiner: To be assigned

For: ENVIRONMENTALLY BENIGN ANTI-ICING OR DEICING AGENT

New York, New York 10036  
November 12, 2001

Box PATENT APPLICATION  
Assistant Commissioner for Patents  
Washington, D.C. 20231

**PRELIMINARY AMENDMENT**

Dear Sir:

Prior to examination of the above-identified application, please enter the following amendments to the application:

**IN THE SPECIFICATION**

Kindly amend the specification by inserting before the first line the following:

**--CROSS REFERENCES TO RELATED APPLICATION**

This is a continuation application of application Serial No. 09/676,377, filed September 29, 2000, now allowed, which in turn is a continuation of application Serial No. 436,811 filed November 9, 1999, now United States Patent No. 6,129,857,

issued October 10, 2000, which in turn is a continuation of application Serial No. 09/161,865, filed September 28, 1998, now U.S. Patent no. 5,980,774, issued November 9, 1999, which in turn is a continuation-in-part of application Serial No. 08/940,936, filed September 30, 1997, now U.S. Patent No. 5,876,621, issued March 2, 1999.--

**IN THE CLAIMS**

Please cancel claims 2-34 without prejudice. Please add the following claims.

35. (New) A deicing and/or anti-icing agent comprising at least about 10 weight percent based on the weight of (a) and (b) of (a) a hydrocarbyl aldoside selected from the group consisting of furanosides, maltosides, maltotriosides, glucopyranosides and mixtures thereof; (b) water; and (c) a soluble organic salt comprising a hydroxyformate salt selected from the group consisting of sodium carbonate, potassium carbonate, sodium bicarbonate, potassium bicarbonate and mixtures thereof.

36. (New) A deicing and/or anti-icing agent as defined in Claim 35 wherein said hydroxyformate salt comprises potassium carbonate.

37. (New) A deicing and/or anti-icing agent as defined in Claim 35 wherein said agent further comprises a freezing point lowering additive selected from the group consisting of amino acids, salts of amino acids, lignin components, boric acid, salts of boric acid, glycerol, glycols and mixtures thereof.

38. (New) A deicing and/or anti-icing agent comprising (a) at least about 10 weight percent based on the weight of (a) and (b) of (a) a hydrocarbyl aldoside; (b) water; and (c) an effective freezing point lowering amount of a hydroxyformate salt selected

from the group consisting of sodium carbonate, potassium carbonate, sodium bicarbonate, potassium bicarbonate and mixtures thereof.

39. (New) A deicing and/or anti-icing agent as defined in Claim 38 wherein said hydrocarbyl aldoside comprises sorbitol.

40. (New) A deicing and/or anti-icing agent as defined in Claim 38 wherein said hydroxyformate salt comprises potassium carbonate.

41. (New) A deicing and/or anti-icing agent as defined in Claim 38 wherein said agent further comprises a freezing point lowering additive selected from the group consisting of amino acids, salts of amino acids, lignin components, boric acid, salts of boric acid, glycerol, glycols and mixtures thereof.

42. (New) A method of deicing a surface having ice thereon, said method comprising applying to said iced surface a deicing agent as defined in Claim 35.

43. (New) A method as defined in Claim 42 wherein said hydroxyformate salt comprises potassium carbonate.

44. (New) A method of anti-icing a surface, said method comprising applying to said surface prior to the formation of ice thereon an anti-icing agent as defined in Claim 35.

45. (New) A method as defined in Claim 44 wherein said hydroxyformate salt comprises potassium carbonate.

46. (New) A method of deicing a surface having ice thereon, said method comprising applying to said iced surface a deicing agent as defined in Claim 38.

47. (New) A method as defined in Claim 46 wherein said hydroxyformate salt comprises potassium carbonate.

48. (New) A method of anti-icing a surface, said method comprising applying to said surface prior to the formation of ice thereon an anti-icing agent as defined in Claim 38.

49. (New) A method as defined in Claim 48 wherein said hydroxyformate salt comprises potassium carbonate.

50. (New) A method of deicing and/or anti-icing a surface, said method comprising applying to said surface a deicing and/or anti-icing agent comprising at least about 10 weight percent of a hydrocarbyl aldoside selected from the group consisting of furanosides, maltosides, maltotriosides, glucopyranosides, non-alkyl glucosides and mixtures thereof.

51. (New) A method as defined in Claim 50 wherein said method comprises deicing a surface comprising applying said deicing agent to an iced surface.

52. (New) A method as defined in Claim 50 wherein said method comprises anti-icing a surface comprising applying said anti-icing agent to said surface prior to ice formation thereon.

53. (New) A method as defined in Claim 50 wherein said deicing and/or anti-icing agent further comprises a soluble salt.

54. (New) A method as defined in Claim 53 wherein said soluble salt comprises an organic salt selected from the group consisting of a carboxylic acid salt, a dicarboxylic acid salt, a hydroxycarboxylic acid salt and mixtures thereof.

55. (New) A method as defined in Claim 54 wherein said hydroxycarboxylic acid salt comprises a hydroxyformate salt.

56. (New) A method as defined in Claim 55 wherein said hydroxyformate salt is selected from the group consisting of sodium carbonate, potassium carbonate, sodium bicarbonate, potassium bicarbonate and mixtures thereof.

57. (New) A method as defined in Claim 56 wherein said hydroxyformate salt comprises potassium carbonate.

58. (New) A method as defined in Claim 54 wherein said organic salt comprises potassium acetate.

59. (New) A method as defined in Claim 50 wherein said deicing and/or anti-icing agent further comprises an effective freezing point lowering amount of a freezing point lowering additive selected from the group consisting of amino acids, salts of amino acids, lignin components, boric acid, salts of boric acid, glycerol, glycals and mixtures thereof.

60. (New) A method of deicing and/or anti-icing a surface, said method comprising applying to said surface a deicing agent comprising (a) an effective freezing point lowering amount of sorbitol and (b) an effective freezing point lowering amount of a freezing point lowering agent selected from the group consisting of carboxylic acid salts, hydroxycarboxylic acid salts, dicarboxylic acid salts, amino acids, salts of amino acids, lignin components, boric acid, salts of boric acid, glycerol, glycals and mixtures thereof.

60. (New) A method as defined in Claim 60 wherein said method comprises deicing a surface comprising applying said deicing agent to an iced surface.

61. (New) A method as defined in Claim 60 wherein said method comprises anti-icing a surface comprising applying said anti-icing agent to said surface prior to ice formation thereon.

62. (New) A method as defined in Claim 60 wherein said hydroxycarboxylic acid salt comprises a hydroxyformate salt.

63. (New) A method as defined in Claim 62 wherein said hydroxyformate salt is selected from the group consisting of sodium carbonate, potassium carbonate, sodium bicarbonate, potassium bicarbonate and mixtures thereof.

64. (New) A method as defined in Claim 63 wherein said hydroxyformate salt comprises potassium carbonate.

65. (New) A method of deicing or anti-icing a surface, said method comprising applying to said surface a deicing agent comprising (a) at least about 10 weight percent of a hydrocarbyl aldoside; and (b) an effective freezing point lowering amount of a freezing point lowering compound selected from the group consisting of carboxylic acid salts, hydroxycarboxylic acid salts, dicarboxylic acid salts, amino acids, salts of amino acids, lignin compounds, boric acid, salts of boric acid, glycerol, glycols and mixtures thereof.

66. (New) A method as defined in Claim 65 wherein said method comprises deicing a surface comprising applying said deicing agent to an iced surface.

67. (New) A method as defined in Claim 65 wherein said method comprises anti-icing a surface comprising applying said anti-icing agent to said surface prior to ice formation thereon.

68. (New) A method as defined in Claim 65 wherein said hydroxycarboxylic acid salt comprises a hydroxyformate salt.

69. (New) A method as defined in Claim 68 wherein said hydroxyformate salt is selected from the group consisting of sodium carbonate, potassium carbonate, sodium bicarbonate, potassium bicarbonate and mixtures thereof.

70. (New) A method as defined in Claim 69 wherein said hydroxyformate salt comprises potassium carbonate.

71. (New) A method of de-icing and/or anti-icing a surface, said method comprising applying to said surface a deicing and/or anti-icing agent comprising (a) an industrial process stream comprising at least about 10 weight percent of a low molecular weight sugar, and (b) a soluble salt.

72. (New) A method as defined in Claim 71 wherein said method comprises deicing comprising applying said deicing agent to an iced surface.

73. (New) A method as defined in Claim 71 wherein said method comprises anti-icing comprising applying said anti-icing agent to said surface prior to formation of ice thereon.

74. (New) A method as defined in Claim 71 wherein said low molecular weight sugar is selected from the group consisting of maltoses, glucose, sorbitol and mixtures thereof.

75. (New) A method as defined in Claim 71 wherein said low molecular weight sugar comprises a monosaccharide.

76. (New) A method as defined in Claim 75 further comprising an effective freezing point lowering amount of a hydrocarbyl aldoside selected from the group

consisting of furanosides, maltosides, maltotriosides, glucopyranosides, non-alkyl glucosides and mixtures thereof.

77. (New) A method as defined in Claim 71 wherein said industrial process stream is an agricultural process stream.

78. (New) A deicing and/or anti-icing agent comprising (a) an industrial process stream comprising at least about 10 weight percent of a hydrocarbyl aldoside selected from the group consisting of a glucopyranoside, a furanoside or a mixture thereof, and (b) a soluble salt.

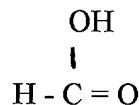
79. (New) A deicing and/or anti-icing agent comprising (a) an industrial process stream comprising at least about 10 weight percent of a hydrocarbyl aldoside selected from the group consisting of furanosides, maltosides, maltotriosides, glucopyranosides, non-alkyl glucosides and mixtures thereof, (b) a soluble salt, and (c) amino acids, salts of amino acids and/or monosaccharide sugars.

#### REMARKS

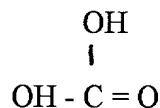
Allowance of Claims 35-79 is respectfully requested.

The present application is a continuation application of prior application Serial No. 09/676,377 ("the '377 application"). In the '377 application all pending claims were allowed except for claims 72-74 and 82. Specifically, the Examiner objected to Claims 72-74 and 82 of the '377 application as containing new matter. In response Applicant canceled Claims 72-74 and 82 of the '377 application without prejudice. Accordingly, Applicant has rewritten Claims 72-74 and 82 of the '377 application as present claims 35-49. Applicant respectfully submits that no new matter has been added.

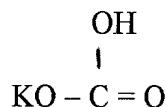
Applicant respectfully submits that support for the Markush grouping of sodium carbonate, potassium carbonate, sodium bicarbonate and potassium carbonate is found in the chemistry of hydroxyformate salts. The Examiner has already agreed that the originally filed specification has support for hydroxyformate salts. See previously allowed claims 43, 49, 54 and 79 of the '377 application. Formic acid has the chemical structure of:



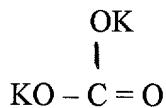
Further, hydroxyformic acid has the structure of:



Another name for hydroxyformic acid is carbonic acid. See, *Hackh's Chemical Dictionary*, 4<sup>th</sup> ed., 1969, p. 133 (copy attached hereto). The potassium salts of carbonic or formic acid are potassium bicarbonate of the structure:



and potassium carbonate of the structure:



The sodium salts, sodium bicarbonate and sodium carbonate would be formed in like manner.

Accordingly, based on the chemistry of hydroxyformate salts, the originally filed specification clearly has support for the Markush group, sodium

carbonate, sodium bicarbonate, potassium carbonate and potassium bicarbonate. Additional support for the carbonates is found in the originally filed specification at page 6, line 11; page 9, line 16 and page 10, lines 1-2.

Applicant also respectfully submits that newly added claims 50-70 are fully supported by the originally filed specification. These claims are similar to those previously allowed in the '377 application, but without the requirement for water, *i.e.*, these claim the deicing and anti-icing agents and methods in dry solid form. Applicant respectfully submits that Claims 50-77 are supported in the originally filed specification at, *inter alia*, page 5, lines 11-14 (deicing and/or anti-icing can be prepared from the pure components); page 6, lines 6-8; and page 12, lines 3-14.

Applicant further respectfully submits that new claims 71-77 are fully supported by the originally filed specification. New claims 71-77 call for the industrial process stream used as part of the deicing/anti-icing agent to comprise low molecular weight sugars, such as maltoses, glucose, sorbitol and mixtures thereof. Support can be found in the originally filed specification at page 8, lines 19-22.

New claims 78-79 are rewrites of previously allowed claims 70 and 75 of the '377 application, except instead of depending from claim 65 of the '377 application, they are written to depend from claim 64 of the '377 application. Applicant respectfully submits that no new matter has been added.

Applicant respectfully requests that the Examiner examine these newly added claims in light of all prior art. Applicant believes that the newly added claims are allowable over the known prior art.

Early and favorable action is earnestly solicited. The Examiner is invited to contact the undersigned to discuss any still outstanding matter.

Respectfully submitted,



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